

Abstract of the Disclosure

The present invention relates to a high voltage and high power gallium nitride (GaN) transistor structure. In general, the GaN transistor structure includes a sub-buffer layer that serves to prevent injection of electrons into a substrate during high voltage operation, thereby improving performance of the GaN transistor structure during high voltage operation. Preferably, the sub-buffer layer is aluminum nitride, and the GaN transistor structure further includes a transitional layer, a GaN buffer layer, and an aluminum gallium nitride Schottky layer.